

ABSTRACT

A diaphragm optic sensor comprises a single crystal ferrule, preferably single crystal sapphire, including a bore having an optical fiber disposed therein and a diaphragm attached to the ferrule, the diaphragm being spaced apart from the ferrule to form a Fabry-Perot cavity. The cavity is formed by creating a pit in the ferrule or in the diaphragm, or by interposing a spacer between the diaphragm and ferrule. The components of the sensor are preferably welded together, preferably by laser welding. In some embodiments, the entire ferrule is bonded to the fiber along the entire length of the fiber within the ferrule; in other embodiments, only a portion of the ferrule is welded to the fiber.